
Space Weather Forecast

Issued on Saturday 15 March 2025 at 00:36 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Moderate class flares likely. Chance G1/Minor Storms Days 2-3 (16-17 Mar).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate with one Moderate-class Flare at 14/2221 UTC from a new region near the southeast limb. There are twelve regions on the disc. A region in the northwest has continued to decay, especially in the trailing portion, with previous magnetic complexity now fading. A region near north centre disc has developed fairly rapidly in the last 24 hours, but so far has a straightforward magnetic structure. Three new regions near the southeast limb are difficult to assess whilst close to the limb, but so far appear to have straightforward magnetic structures. The proximity of the three regions suggests there could be some interaction between them, however. The remaining regions appear fairly small and simple at present, but looping in satellite imagery suggests there may be further regions to rotate onto the east limb in the near future.

No Earth-directed Coronal Mass Ejections (CMEs) have been observed in available imagery.

Solar Wind / Geomagnetic Activity: An ongoing coronal hole fast wind was observed. Solar winds were at elevated levels, mainly between 500-600 km/s. Interplanetary Magnetic Field was weak, with the north-south component varying weakly. Geomagnetic activity reached the G1/Minor Storm (Kp 5) level 14/0000-0300 UTC, then was Quiet to Unsettled (Kp 2-3) thereafter.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected, with isolated Moderate class flares likely.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Solar winds are currently elevated due to a coronal hole fast wind. Conditions are likely to very slowly ease during Days 1-2 (15-16 Mar), before a second fast wind enhancement probably occurs, with solar winds rising again to elevated levels. However it is possible that a more continuous spell of fast winds may occur throughout the period, which would reduce the potential for geomagnetic activity on Days 2-3 (16-17 Mar).

Due to this, confidence is lower than would typically be expected for this situation. Mainly Quiet to Unsettled activity is expected. However further Active intervals remain possible, with a slight chance of G1/Minor Storms, this becoming a chance on Days 2-3 should we see a more definite onset of the second fast wind.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is likely to be at background levels, but with a slight chance of an enhancement, should there be any larger flares mainly from the west of the disc.

Geomagnetic Storms

Geomagnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	Yes	10	30	30	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 (M Class)	Yes	60	60	60	60
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	5	5	5	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = cm ⁻² sr ⁻¹ s ⁻¹)						